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U. S. ARMY ENGINEERING AND
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HUNTSVILLE, ALABAMA

RANGE AND TRAINING LAND PROGRAM STANDARD DESIGN MANUAL LATRINE WITH AERATED VAULT

Sheet
reference
number:
A-06

GENERAL

The latrine with an aerated vault provides restroom facilities for men and women. The latrine will accommodate a training unit of up to 190 men and 35 women based on OSHA standards. An aerated vault is constructed beneath the building.

SITE ADAPTATION

This standard definitive design should be adapted to local conditions such as climate, available construction materials and techniques, topography, seismic zone and the existing character of surrounding buildings. These factors may affect plans, elevations and building systems. The building foundation must be designed based on the results of a geotechnical investigation.

REFERENCE CRITERIA

The design and construction must comply with applicable codes and standards including: technical instruction TI800-01, "Design Criteria"; Department of the Army regulations, technical manuals, handbooks, standards, and specifications.

FUNCTIONAL REQUIREMENTS

All dimensions are in millimeters unless otherwise labeled. Windows are bottom hinged inswinging to meet functional requirements providing natural lighting and ventilation. Windows have forced entry resistant metal frames and are provided with insect screens. Provide polycarbonate security translucent glazing in windows. An 18-gauge diamond mesh partition 2438 mm (8'-0") high with a 762mm (2'-6") x 2133 mm (7'-0") diamond mesh door encloses the mechanical area. Gutters, downspouts and splash blocks should be provided where required by climatic conditions. Covered entries and ice guards may be necessary in northern climates. Floors should be sealed for ease of cleaning. Ceilings should be finished.

The latrine is accessed only by able-bodied personnel and does not require ADA compliance unless dictated by local criteria.

MECHANICAL

No comfort cooling is required for the facility; however, some installations may wish to include comfort heating. The Latrine may be either an Aerated Vault design or a Dry Vault design, depending on the installation's requirements. Some Installations require a Dry Vault Latrine due to the maintenance requirements of the vault's aeration system. The Aerated Vault is designed to use an aeration system to reduce the volume of waste. Exhaust fans and louvers provide ventilation to the rooms. An additional larger roof mounted exhaust fan draws air directly out of the vault. The compressor and vault exhaust fan should run continuously, the room exhaust fans should be switched on at night lights. Air from the compressor is piped to a 20mm PVC pipe distribution system 150mm above the bottom of the vault. The water level must be maintained a minimum of 50mm above the aeration system piping. Chemical and other foreign substances must not be put into the vault. The Dry Vault Latrine should also include the louvers and exhaust fans for room ventilation, a roof mounted exhaust fan to draw air directly from the vault, and an exterior cast iron manhole cover to provide access for pumping the tank.

ELECTRICAL

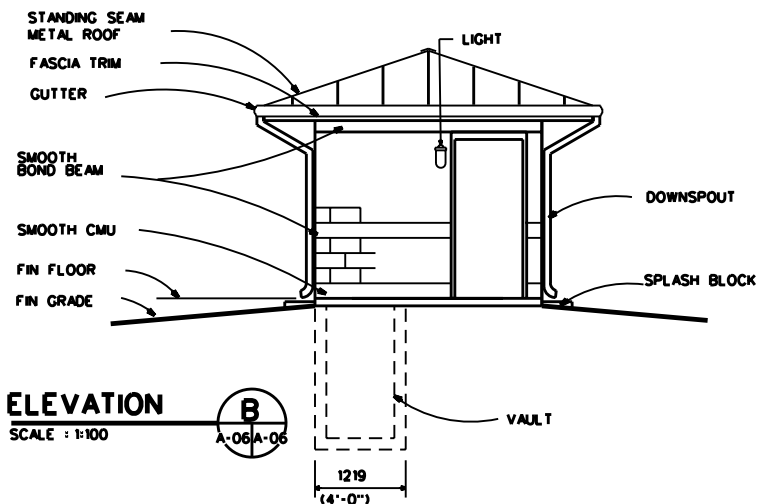
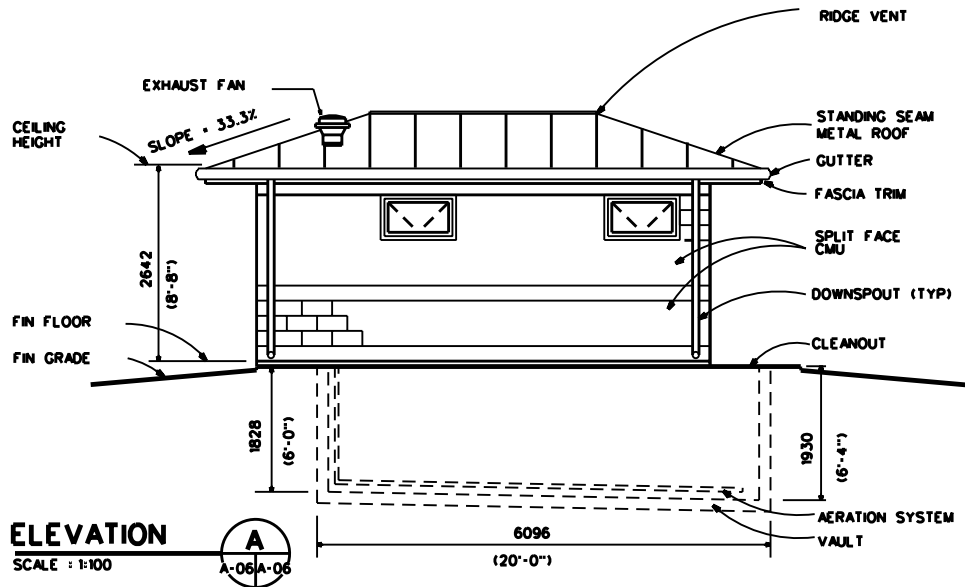
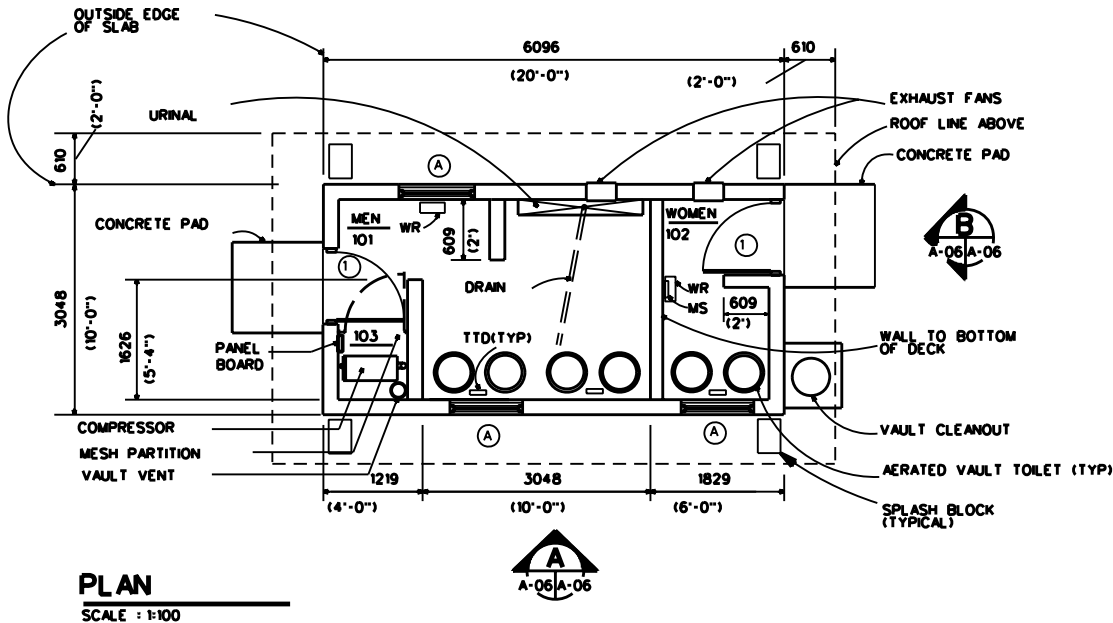
The latrine shall be served by 120/240V, 1 phase, 3-wire secondary power. Rigid steel conduit shall extend a minimum of 1524mm (5') outside the building for power circuits entering and leaving the building. Voltage drop shall comply with standards in NEC and Army technical manuals. Grounding will be installed in accordance with NFPA 70, the NEC, and other applicable standards. The panelboard shall be 120/240V single phase, mounted inside building. Receptacles shall be GFCI, 120V, 20A Duplex molded 305mm (12") above the finished floor. Illumination levels will be designed in accordance with IES. Interior lighting shall consist of fluorescent lamps at a level of 20 foot-candles. Each room shall be provided with separate switching. Exterior lighting shall be provided with separate switching located near points of egress. Per NFPA 101 annex A, exit signs are not required for the latrine. Lightning protection is not required for this building.

FIRE PROTECTION

Fire protection is not required per fire codes for this building. Consult local Fire Marshall for compliance with local laws.

ABBREVIATIONS

MS - Mirror with shelf TTD - toilet tissue dispenser WR - waste receptacle



GRAPHIC SCALES

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